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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,294	07/30/2003	Jun Yoshitani	11795/4	9722

7590

06/13/2006

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EXAMINER

BEISNER, WILLIAM H

ART UNIT

PAPER NUMBER

1744

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/630,294	Applicant(s) YOSHITANI ET AL.	
	Examiner William H. Beisner	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 1-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/3/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, Claims 37-61, in the reply filed on April 3, 2006 is acknowledged.
2. Claims 1-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 4, 2006.

Information Disclosure Statement

3. The information disclosure statement filed November 3, 2003 has been considered and made of record.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 56 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 56, "said second bioreactor" lacks antecedent basis. Note claim 56 should depend from claim 55 rather than claim 54.

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In claim 57, “said second sonic energy source” lacks antecedent basis. Note claim 57 should depend from claim 56 rather than 55.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 37, 38, 40, 44-46, 48, 51, 52 and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomoyuki (JP 2001-259663).

With respect to claim 37, the reference of Tomoyuki discloses a system for sonication-enhanced digestion of cellular matter that includes a bioreactor (1) having an inlet (51) and an outlet (52); a sonic energy source (3) operatively connected to the bioreactor; and at least one rotating member (4) operatively connected to the bioreactor.

With respect to claims 38 and 40, the sonic energy source (3) is capable of applying between 2MHz and 10kHz (See paragraph [0013] of the English language machine translation). Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claims 44-46, the bioreactor is capable of being supplied with microbes. Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claim 48, the reference discloses the use of a heater (See column 5, lines 28-33).

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With respect to claim 51, the device includes a first bioreactor (1) and a first sonic energy source (3) wherein the sonic energy source (3) is capable of applying between 2MHz and 10kHz (See paragraph [0013] of the English language machine translation). Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claim 52, the device includes at least one rotating member (4).

With respect to claim 61, the reference discloses a bioreactor (1), a sonicating means (3), and a means for mixing (4).

8. Claims 37-41, 43-46, 48, 49, 51, 52, 55, 56, 58 and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by Switzgable (US 4,090,940).

With respect to claim 37, the reference of Switzgable discloses a system for sonication-enhanced digestion of cellular matter that includes a bioreactor (2,4) having an inlet (30) and an outlet (76); a sonic energy source (50) (See column 5, lines 50-62) operatively connected to the bioreactor; and at least one rotating member (66) operatively connected to the bioreactor.

With respect to claim 38, while the reference is silent as to the frequency employed, the sonic energy source (50) is inherently capable of providing energy in the range of 1-10kHz. Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claim 39, the sonic energy source supplies energy in a plurality of zones (2 and 4).

With respect to claims 40 and 41, the sonic energy sources (50, 64) are inherently capable of providing energy in the range of 1-10kHz and/or 1-2000kHz. Note statements of intended use carry no patentable weight in apparatus-type claims.

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With respect to claim 43, compressors (16,18) create a vacuum in the bioreactor (2,4).

With respect to claims 44-46, the bioreactor is capable of being supplied with microbes.

Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claim 48, the reference discloses the use of a heater (See column 5, lines 28-33).

With respect to claim 49, compressors (16,18) function as gas exhaust valves.

With respect to claim 51, the device includes a first bioreactor (2) and a first sonic energy source (50) wherein the sonic energy source (50) is inherently capable of providing energy in the range of 1-10kHz. Note statements of intended use carry no patentable weight in apparatus-type claims.

With respect to claims 52 and 58, the device includes at least one rotating member (66).

With respect to claim 55, the device includes a second bioreactor (4) connected to the first.

With respect to claim 56, the second bioreactor includes a second sonic energy source (64).

With respect to claim 61, the reference discloses a bioreactor (2), a sonicating means (50), and a means for mixing (66).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 50, 54, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Switzgable (US 4,090,940).

The reference of Switzgable has been discussed above.

Claims 50, 54 and 59 differ by reciting that the device includes a process controller.

In the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the

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system of the primary reference with a process controller for the known and expected result of automating the control the process conditions.

With respect to the third bioreactor of claim 60, in the absence of a showing of criticality and/or unexpected results, it would have been well within the purview of one having ordinary skill in the art to add an additional bioreactor for increasing the anaerobic efficiency of the sludge treatment system.

13. Claims 42, 53 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Switzgable (US 4,090,940) in view of Tiehm et al.(Water Research).

The reference of Switzgable has been discussed above.

Claims 42, 53 and 57 differ by reciting the specific structure of the sonic energy source.

The reference of Tiehm et al. discloses that it is known in the art to apply sonic energy to a bioreactor vessel using a contact plate (vibrating plate); a transducer (transducer); and a generator/power supply (generator, See Figure 2).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to employ the sonic energy source structure disclosed by the reference of Tiehm et al. in the system of the primary reference for the known and expected result of providing an alternative means recognized in the art for sonicating sludge within a bioreactor vessel.

14. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Switzgable (US 4,090,940) in view of Nobl et al.(US 4,746,433).

The reference of Switzgable has been discussed above.

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With respect to the inclined reactor of claim 47, the reference of Nobl et al. discloses that the use of inclined reactors for treating sludge is known in the art (See column 4, lines 50-68).

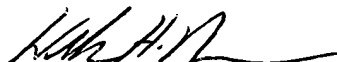
In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the system of the primary reference to employ a plug flow reactor as suggested by the reference of Nobl et al. for the known and expected result of providing an alternative means recognized in the art to achieve the same result, biologically treat sludge to generate methane.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Beisner whose telephone number is 571-272-1269. The examiner can normally be reached on Tues. to Fri. and alt. Mon. from 6:15am to 3:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys J. Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William H. Beisner
Primary Examiner
Art Unit 1744

WHB